

Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 48-68 (canceled)

Claim 69 (new): A polypeptide comprising the amino acid sequence of SEQ ID NO: 2.

Claim 70 (new): A glycopolypeptide comprising the amino acid sequence of SEQ ID NO: 2.

Claim 71 (new): A polypeptide comprising the amino acid sequence of SEQ ID NO: 2 or a conservatively substituted amino acid sequence thereof, said conservative substitutions being at least one of amino acid residue number 3, 8, 13, 16, 17, 19, 21, 22, 23, 25, 27, 28, 30, 32, 33, 34, 35, 38, and 39 of SEQ ID NO: 2, wherein said polypeptide binds human spermatozoa at least ten times as strong as an equivalent molar amount of mouse ZP3.

Claim 72 (new): A glycopolypeptide comprising the amino acid sequence of SEQ ID NO: 2 or a conservatively substituted amino acid sequence thereof, said conservative substitutions being at least one of amino acid residue number 3, 8, 13, 16, 17, 19, 21, 22, 23, 25, 27, 28, 30, 32, 33, 34, 35, 38, and 39 of SEQ ID NO: 2, wherein said glycopolypeptide binds human spermatozoa at least ten times as strong as an equivalent molar amount of mouse ZP3.

Claim 73 (new): A polypeptide comprising an amino acid sequence, Ser-Trp-A-Pro-Val-Gln-Gly-Pro-Ala-Asp-Ile-Cys-B-Cys-Cys-C-Lys-Gly-D-Cys-E-F-Pro-Ser-G-Ser-H-I-Gln-J-His-K-Met-L-M-Trp-Ser-N-Ser-Val-Ser, wherein

A is selected from the group consisting of Phe and Tyr;

B is selected from the group consisting of Gln and Asp;

C is selected from the group consisting of Asn and Gln;

D is selected from the group consisting of Asp, Asn, Glu, Gln, Ile, Pro, Phe, and Cys;

E is selected from the group consisting of Gly, Ala, and Ile;

F is selected from the group consisting of Thr and Ser;

G is selected from the group consisting of His and Lys;

H is selected from the group consisting of Arg and Lys;

I is selected from the group consisting of Arg and Lys;

J is selected from the group consisting of Pro and Met;

K is selected from the group consisting of Val, Iso, and Met;

L is selected from the group consisting of Ser and Thr;

M is selected from the group consisting of Gln and Asn; and

N is selected from the group consisting of Arg and Lys.

Claim 74 (new): A glycopolypeptide comprising an amino acid sequence, Ser-Trp-A-Pro-Val-Gln-Gly-Pro-Ala-Asp-Ile-Cys-B-Cys-Cys-C-Lys-Gly-D-Cys-E-F-Pro-Ser-G-Ser-H-I-Gln-J-His-K-Met-L-M-Trp-Ser-N-Ser-Val-Ser, wherein

A is selected from the group consisting of Phe and Tyr;

B is selected from the group consisting of Gln and Asp;

C is selected from the group consisting of Asn and Gln;

D is selected from the group consisting of Asp, Asn, Glu, Gln, Ile, Pro, Phe, and Cys;

E is selected from the group consisting of Gly, Ala, and Ile;

F is selected from the group consisting of Thr and Ser;

G is selected from the group consisting of His and Lys;

H is selected from the group consisting of Arg and Lys;

I is selected from the group consisting of Arg and Lys;

J is selected from the group consisting of Pro and Met;

K is selected from the group consisting of Val, Iso, and Met;

L is selected from the group consisting of Ser and Thr;

M is selected from the group consisting of Gln and Asn; and

N is selected from the group consisting of Arg and Lys.

Claim 75 (new): A glycosylated recombinant human zona pellucida protein 3 expressed by a human ovarian cell having sperm-binding and acrosome reaction inducing activity.

Claim 76 (new): The protein of claim 75, wherein the ovarian cell line is selected from the group consisting of PA-1, EB₂, CaoV-3, CaoV-4, OVCAR-3, SKOV-3, and SW 626.

Claim 77 (new): The protein of claim 75, wherein the ovarian cell line is PA-1.

Claim 78 (new): The protein of claim 75, wherein the recombinant human zona pellucida protein 3 comprises the amino acid sequence of SEQ ID NO: 2.